REMARKS

Claims 1-16 were presented. Claims 1-9 were allowed. Claims 10-16 were rejected under 35 U.S.C. §102 (b) as being anticipated by U.S. Patent No. 6,233,132 to Jenski (hereinafter "Jenski").

Applicants thank Examiner Nolan for indicating the presence of allowable matter. The claims have not been amended because Applicants believe that Claims 10-16 as presented originally should be allowable. Claims 1-16 are pending in the application.

Examiner Nolan is thanked for a telephonic interview that took place on November 12, 2004, in which the undersigned participated. The interview discussion covered the rejection of the claims under 35 U.S.C. §102(b), the cited art, and the claims. The Applicants presented arguments to distinguish the invention as claimed over the cited art. Agreement was reached with regard to the patentability of Claim 10, and that the arguments presented herein are persuasive.

Claim 1 as originally presented has been identified as an allowable claim. Claim 1 as originally presented recited "said voltage source further configured to provide a reference voltage signal" and "a voltage sensor having ... a second terminal configured to receive a second reference voltage, ..." Applicants have amended Claim 1 to recite "said voltage source further configured to provide a first reference voltage signal," and "to receive a second reference voltage signal." Claim 1 as originally presented recited "said controller module configured to receive said reference voltage signal and said sensed voltage signal, said controller module configured to use said at least one analog-to-digital converter to convert said reference voltage signal and said sensed voltage signal into respective discrete time sampled digital signals, ..." Applicants have further amended Claim 1 to recite "said controller module configured to receive a reference voltage signal based on at least one of said first and second reference voltage signals and said sensed voltage signal, said controller module configured to use said at least one analog-to-digital converter to convert said reference voltage signal based on at least one of said first and second reference voltage signals and said sensed voltage signal into respective discrete time sampled digital signals, ..." Support for the amendments is found at least in Fig. 1, and in those portions of the

Specification describing Fig. 1 and its operation. As is well understood in the electrical arts, the voltages shown and described as V+ (e.g., supply voltage) and G2 (e.g., ground voltage) can be understood as two reference voltages, from which additional reference voltages can be generated, for example with voltage dividers. The amendments do not narrow the scope of Claim 1. In fact, one can argue that the amendments actually broaden the scope of Claim 1, in that "at least one of said first and second reference voltage signals" is broader than either the first reference voltage signal or the second reference voltage signal alone. The amendments to Claim 1 are made only so that there can be little or no issue as to the proper interpretation of the plain language of Claim 1, without resort to review of the Specification or other teachings.

Response to Rejection of Claims 10-16 under 35 U.S.C. §102(b)

Claims 1-16 were rejected under 35 U.S.C. §102(b) as being anticipated by Jenski. Jenski teaches a method and system for relay actuation under zero crossing conditions.

Independent Claim 10 recites in relevant part "measuring a voltage signal across a relay coil as a first time sampled signal, **said voltage signal comprising [1]** a relay coil voltage component, **[2]** a power supply voltage component, and **[3]** a voltage component induced by a motion of said armature." (emphasis and numerals added).

Applicants respectfully submit that Jenski does not teach or suggest any of the three components that Applicants have included as limitations in their Claim 10 as originally filed. Applicants teach in the Specification at paragraphs [00033] and [00034] and Eq. (1) a general description and a specific embodiment of a model that employs the three components recited in Claim 10.

Applicants discussed the disclosure of Jenski in the instant application at paragraph [0007]. As stated by Applicants in paragraph [0007],

> U.S. Patent 6,233,132, entitled "Zero cross relay actuation method and system implementing same," issued on May 15, 2001 to Jenski (hereinafter "the Jenski patent") describes apparatus and methods operating relay contacts under zero crossing conditions by detecting slope changes in coil voltage and current. Jenski's method requires that a resistor be placed in parallel with the relay coil. Then upon de-energizing the relay coil a "unique" voltage appears,

> as presented by Jenski at Figure 2, that may be used to predict the instant of contact opening. The instant of contact opening is found by means of detecting a change in slope for the voltage waveform shown in Figure 2. In practice, the contacts usually open sometime after the point in time indicated by Jenski, dependent upon relay design. Jenski's method requires a simple slope detector circuit for proper operation. The system records the history of a particular relay, including turn on and turn off times as functions of both positive-going and negative-going portions of sine wave excitations, and uses the historical data to calculate when to actuate the relay contacts.

Applicants respectfully submit that Jenski fails to teach or suggest any measurement of three components of a voltage signal, and in particular dies not teach or suggest the presence of, let alone the measurement of, **[1]** a relay coil voltage component, **[2]** a power supply voltage component, and **[3]** a voltage component induced by a motion of said armature, but merely uses the slope of said voltage signal to control operation of the relay contacts. Jenski teaches at column 9, lines 34-42 that

> This system also includes both a coil current slope detector 116 and a coil voltage slope detector 118 to allow proper sensing of the above-described coil phenomena. While various types of detectors may be utilized to detect the coil current and voltage, an embodiment of the instant invention utilizes a series load resistor 120 and a parallel load resistor 122, although other more costly sensing devices may be utilized, and are considered to be within the scope of the instant invention.

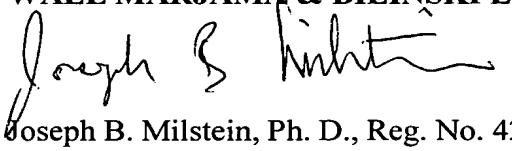
Because Jenski fails to teach or suggest measuring a voltage signal across a relay coil as a first time sampled signal, said voltage signal comprising a relay coil voltage component, a power supply voltage component, and a voltage component induced by a motion of said armature, Jenski fails to anticipate independent Claim 10 as originally presented. Applicants respectfully submit that independent Claim 10 is patentable over Jenski. Applicants further submit that Claims 11-16 which depend from independent Claim 10 are patentable as depending from allowable base claims.

CONCLUSION

Applicants are pleased that the Examiner has indicated the allowability of claims 1-9. Applicants have presented arguments for the allowability of Claim 10-16. Applicants submit that Claims 10-16 are now in proper condition for allowance. Applicants respectfully request reconsideration of Claims 10-16, the withdrawal of the rejections thereof, and the issuance of a Notice of Allowance for all pending claims at the Examiner's earliest convenience.

If the Examiner believes that contact with Applicants' attorney would be advantageous toward the disposition of this case, the Examiner is requested to call Applicants' attorney at the phone number noted below.

Respectfully submitted,
WALL MARJAMA & BILINSKI LLP

By: 

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